CIVIL QUALITY CONSULTANTS & ENGINEERS

(Buildings Geo-Tech & Highway Materials Testing Laboratory)
An ISO 9001: 2008 Certified Company

JAS-ANZ
ISO 9001:2000 CERTIFIED

Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 Date : 08.04.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.

Agency : **Technical Manager (west),** KRIDL, Bangalore.

Name of Work : Improvements and Asphalting to Kammagondanahalli Main road from Sri Rama Temple to WIMAC Junction in Shettyhalli Ward No.12, SSD, BBMP, Bangalore.

Reference : EE/DD/WO/439/2012-13 Dated:08.03.2013

Date of Testing : 08.04.2016

Material Type : Wet Mix Macadam

Oven Dry.Wt 12160

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	187	187	1.5	98.5	95-100
22.4	4215	4402	36.2	63.8	60-80
11.2	2237	6639	54.6	45.4	40-60
4.75	1984	8623	70.9	29.1	25-40
2.36	1238	9861	81.1	18.9	15-30
0.600	1146	11007	90.5	9.5	8-22
0.075	823	11830	97.3	2.7	0-8

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 90 days from the date of testing.

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

Office & Laboratory : # 133, Bhuvaneshwarinagar, Dodda Basti Main Road, Bangalore - 560 056.
e-mail:civilqualityconsultants@gmail.com Ph: 080-23240644 / Mob: 8553518550

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GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.

Agency : **Technical Manager (west),** KRIDL, Bangalore.

Name of Work : Improvements and Asphalting to Kammagondanahalli Main road from Sri Rama Temple to WIMAC Junction in Shettyhalli Ward No.12, SSD, BBMP, Bangalore.

Reference : EE/DD/WO/439/2012-13 Dated:08.03.2013

Date of Testing : 08.04.2016

Material Type : Wet Mix Macadam

Oven Dry.Wt 9675

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	241	241	2.5	97.5	95-100
22.4	2897	3138	32.4	67.6	60-80
11.2	1974	5112	52.8	47.2	40-60
4.75	1642	6754	69.8	30.2	25-40
2.36	1107	7861	81.3	18.7	15-30
0.600	943	8804	91.0	9.0	8-22
0.075	541	9345	96.6	3.4	0-8

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AE-12

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 Date: 14.04.2016

Aggregate Gradation Test
IS : 2386 Part I

Client	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
Agency	**Technical Manager (west),** KRIDL, Bangalore.
Name of the work	Improvements and Asphalting to Kammagondanahalli Main road from Sri Rama Temple to WIMAC Junction in Shettyhalli Ward No.12, SSD, BBMP, Bangalore.
Reference	EE/DD/WO/439/2012-13 Dated:08.03.2013
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	14.04.2016

5250 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	375	7.14	7.14	92.86	90-100	
13.2	1536	29.26	36.40	63.60	56-88	
4.75	1637	31.18	67.58	32.42	16-36	
2.36	1027	19.56	87.14	12.86	4-19	
0.3	283	5.39	92.53	7.47	2-10	
0.075	63	1.20	93.73	6.27	0-8	

Total Weight of Sample: **5050** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	234	4.63	4.63	95.37	90-100	
13.2	1687	33.41	38.04	61.96	56-88	
4.75	1842	36.48	74.51	25.49	16-36	
2.36	933	18.48	92.99	7.01	4-19	
0.3	172	3.41	96.40	3.60	2-10	
0.075	73	1.45	97.84	2.16	0-8	

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 **Date:** 14.04.2016

Aggregate Impact Value

IS: 2386 Part IV

Client	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
Agency	**Technical Manager (west),** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Kammagondanahalli Main road from Sri Rama Temple to WIMAC Junction in Shettyhalli Ward No.12, SSD, BBMP, Bangalore.
Reference	EE/DD/WO/439/2012-13 Dated:08.03.2013
Source / Location	Hotmix Plant, Bangalore
Type of Mix	Bituminous Macadam
Date of Testing	14.04.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	373	376	378	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	90	87	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	283	289	290	
4	Aggregate Impact value = percent fines	24.13	23.14	23.28	
	100* (W_2/W_1)%				23.52

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

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W-12

Ravi.N.K
AE W-12 ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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ಬ ಮ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಮಾನ್ಯರು. ಬೆ.ಜ. ಪಶ್ಚಿಮಾಗಿರಿ, ಬೆಂಗಳೂರು.

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 14.04.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
Agency	**Technical Manager (west),** KRIDL, Bangalore.
Name of Work	Improvements and Asphalting to Kammagondanahalli Main road from Sri Rama Temple to WIMAC Junction in Shettyhalli Ward No.12, SSD, BBMP, Bangalore.
Reference	EE/DD/WO/439/2012-13 Dated:08.03.2013
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Macadam
Date of Testing	14.04.2016

Result : Flakiness Index = **11.89%**

Elongation Index = **13.96%**

Result : Combined Flakiness & Elongation index **25.85%**

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Job No.: CQCE/BBMP/KRIDL/W.No.12/2016-17 19.04.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Dasarhalli Division, BBMP, Bangalore.
AGENCY	**Technical Manager (west),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements and Asphalting to Kammagondanahalli Main road from Sri Rama Temple to WIMAC Junction in Shettyhalli Ward No.12, SSD, BBMP, Bangalore.
Reference	EE/DD/WO/439/2012-13 Dated:08.03.2013
DATE OF TESTING	19.04.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473.5	474.5
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26.5	25.50
7. Bitumen content in %	5.30	5.10
8. Average	5.20	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	34.51	7.29	7.29	92.71	90-100
4.75	251.36	53.09	60.37	39.63	35-51
2.36	42.87	9.05	69.43	30.57	24-39
1.18	33.69	7.12	76.54	23.46	15-30
0.3	48.72	10.29	86.83	13.17	9-19
0.075	33.64	7.10	93.94	6.06	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	27.84	5.57	5.57	94.43	90-100
4.75	262.31	52.46	58.03	41.97	35-51
2.36	40.87	8.17	66.20	33.80	24-39
1.18	56.49	11.30	77.50	22.50	15-30
0.3	41.35	8.27	85.77	14.23	9-19
0.075	46.22	9.24	95.02	4.98	3-8

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